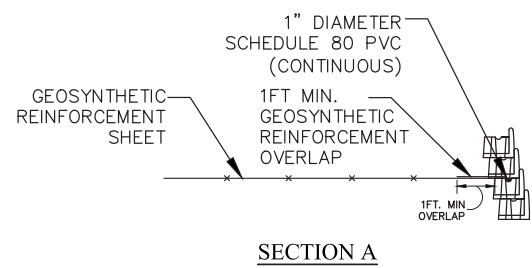
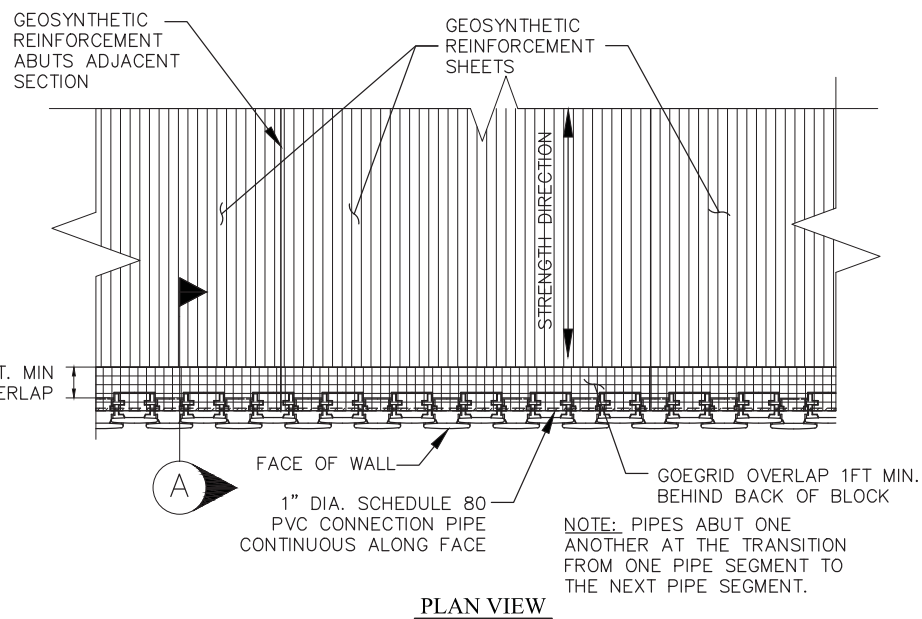


**VERDURA 40 BLOCK DETAILS**



NOTE: GEOSYNTHETIC REINFORCEMENT OVERLAP SHALL BE ON TOP.

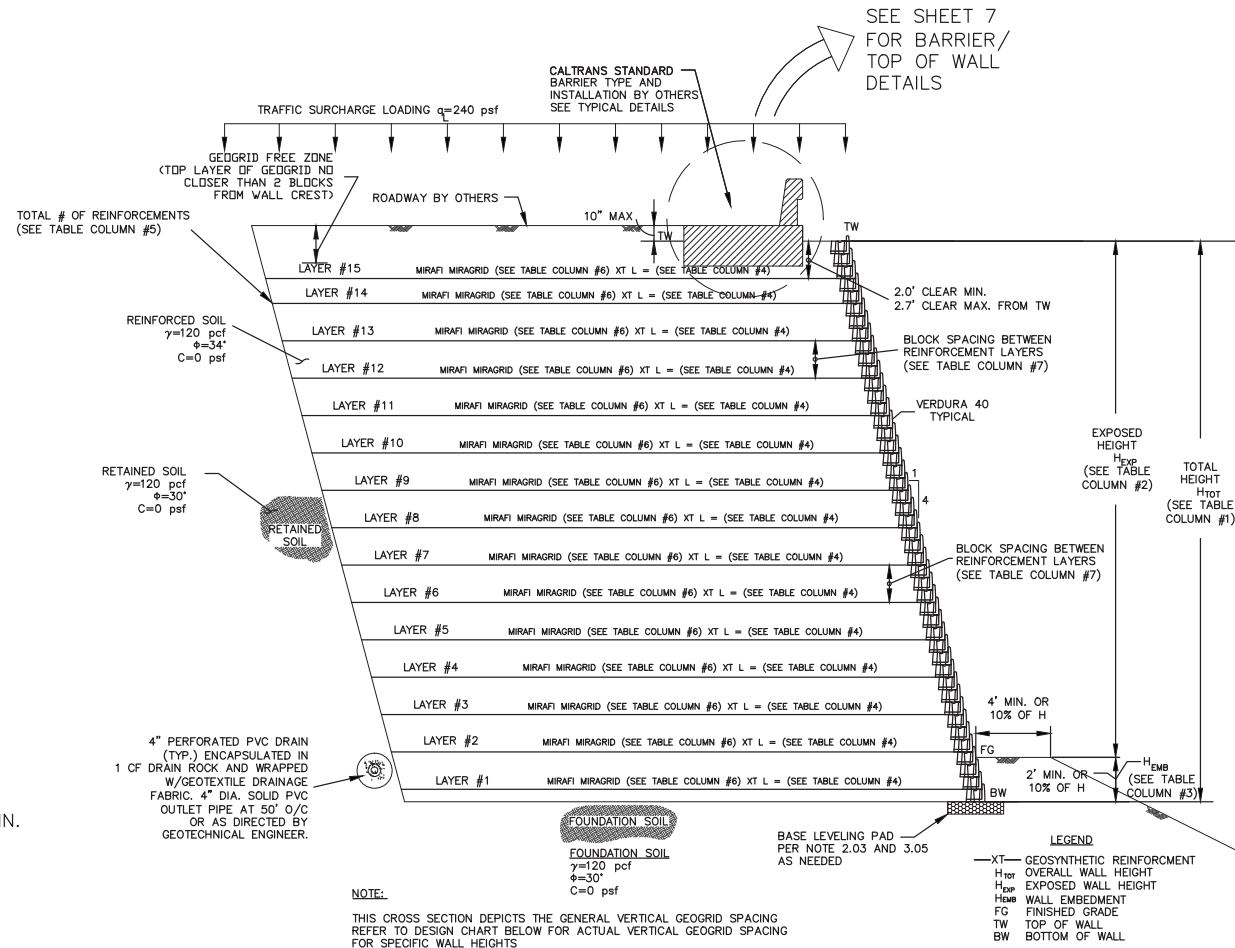


**PLAN VIEW**

**VERDURA GEOGRID CONNECTION DETAIL**

CASE 1 DESIGN CHART- VERDURA® 40 RETAINING WALL- LEVEL TOP WITH TRAFFIC SURCHARGE AND BARRIER										
COLUMN #1	COLUMN #2	COLUMN #3	COLUMN #4	COLUMN #5	COLUMN #6 GEOGRID REINFORCEMENT TYPE		COLUMN #7 BLOCK SPACING BETWEEN REINFORCEMENT LAYER NUMBER			
TOTAL HEIGHT H TOT (FT)	EXPOSED HEIGHT H' (FT)	EMBEDDED DEPTH H EMB (FT)	REINFORCEMENT LENGTH L (FT)	NUMBER OF REINFORCEMENT LAYERS	MIRAGRID 8XT GEOGRID PER LAYER NUMBER	MIRAGRID 20XT GEOGRID PER LAYER NUMBER	1 BLOCK SPACING	2 BLOCK SPACING	3 BLOCK SPACING	FROM THE CREST
< 6	4 OR LESS	2	8	(MINIMUM 2)	ALL LAYERS	N/A	LAYER #1	N/A	LAYER #2	MAXIMUM 4 COURSES
8	6	2	8	4	ALL LAYERS	N/A	LAYER #1	LAYER #4	LAYERS #2 THROUGH #3	MAXIMUM 4 COURSES
10	8	2	8	5	ALL LAYERS	N/A	LAYER #1	LAYER #5	LAYERS #2 THROUGH #4	MAXIMUM 4 COURSES
12	10	2	9	6	ALL LAYERS	N/A	LAYER #1	LAYER #6	LAYERS #2 THROUGH #5	MAXIMUM 4 COURSES
14	12	2	9.8	7	ALL LAYERS	N/A	LAYER #1	LAYER #7	LAYERS #2 THROUGH #6	MAXIMUM 4 COURSES
16	14	2	11.2	8	ALL LAYERS	N/A	LAYER #1	LAYER #8	LAYERS #2 THROUGH #7	MAXIMUM 4 COURSES
18	16	2	12.6	9	ALL LAYERS	N/A	LAYER #1	LAYER #9	LAYERS #2 THROUGH #8	MAXIMUM 4 COURSES
20	18	2	14	10	ALL LAYERS	N/A	LAYER #1	LAYER #10	LAYERS #2 THROUGH #9	MAXIMUM 4 COURSES
22	19.8	2.2	15.4	11	ALL LAYERS	N/A	LAYER #1	LAYER #11	LAYERS #2 THROUGH #10	MAXIMUM 4 COURSES
24	21.6	2.4	16.8	12	LAYERS #3 THROUGH #12	LAYERS #1 & #2	LAYER #1	LAYER #12	LAYERS #2 THROUGH #11	MAXIMUM 4 COURSES
26	23.4	2.6	18.2	13	LAYERS #4 THROUGH #13	LAYERS #1 THROUGH #3	LAYER #1	LAYER #13	LAYERS #2 THROUGH #12	MAXIMUM 4 COURSES
28	25.2	2.8	19.6	14	LAYERS #5 THROUGH #14	LAYERS #1 THROUGH #4	LAYER #1	LAYER #14	LAYERS #2 THROUGH #13	MAXIMUM 4 COURSES
30	27	3.0	21	15	LAYERS #6 THROUGH #15	LAYERS #1 THROUGH #5	LAYER #1	LAYER #15	LAYERS #2 THROUGH #14	MAXIMUM 4 COURSES

NOTE: FOR WALLS GREATER THAN 30' SEE MAXIMUM 30'-40' TOTAL HEIGHT DESIGN



**TYPICAL CROSS SECTION - CASE I**

**NOTES:**

- 1) GEOGRID LENGTHS ARE MEASURED FROM THE POINT OF CONNECTION
- 2) ALL IRRIGATION LINES ARE TO BE INSTALLED ALONG THE FACE OF THE WALL. REFER TO PROJECTS REQUIREMENTS WITHIN THE CONSTRUCTION DOCUMENTS FOR IRRIGATION DETAILS

**DESIGN NOTES:**

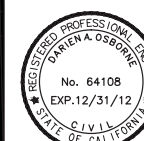
- 1) FOR DESIGN WALL HEIGHTS NOT DEPICTED IN THE TABLE USE LARGER WALL HEIGHT DESIGN CASE FROM THE TABLE. EXAMPLE: FOR A 12.1 FT WALL USE THE 14 FT DESIGN CASE.
- 2) WHERE THE MINIMUM NUMBER OF REQUIRED GEOGRIDS FOR THE LARGER WALL HEIGHT DESIGN DOES NOT FIT WITHIN THE DESIGN WALL HEIGHT, USE A CLOSER GEOGRID SPACING AS NECESSARY TO FIT ALL REQUIRED GEOGRIDS WITHIN THE DESIGN HEIGHT.
- 3) TOTAL HEIGHT DESIGN IN COLUMN #1 ACCOMMODATES BARRIER AND SURCHARGE LOADING. ROAD GRADE ELEVATION EQUALS TW ELEVATION+10" MAX.

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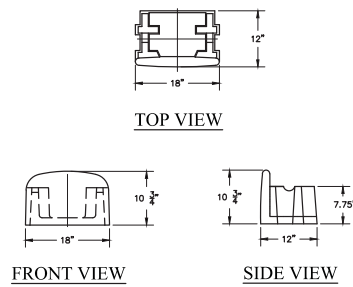
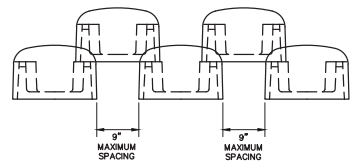

**SOIL RETENTION  
DESIGNS INC.**  
2501 STATE ST. CARLSBAD CA. 92008  
PH: 800-346-7995 FAX: 760-960-6099

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	WALL #
XX	XXX	XX	XXX/XXX	XX
REGISTERED CIVIL ENGINEER <u>        </u> X/X/X DATE				
X-X-X PLANS APPROVAL DATE				
<small>The State of California or its officers or agents shall not be responsible for the accuracy or</small>				

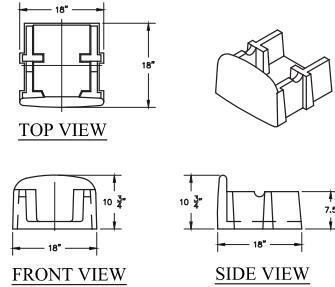


CALTRANS STANDARD DETAILS  
**CASE I DESIGN  
MAXIMUM 30' TOTAL HEIGHT**  
VERDURA® RETAINING WALL PLANS OF 7 SHTS.

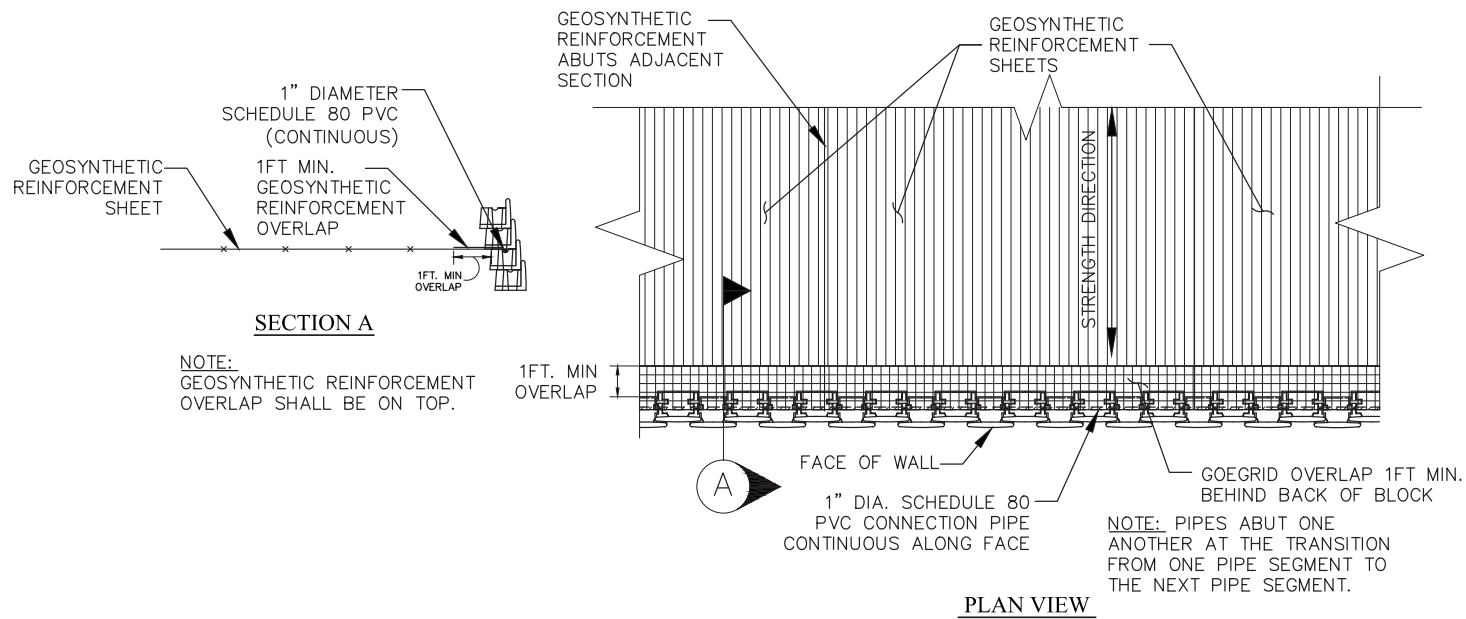




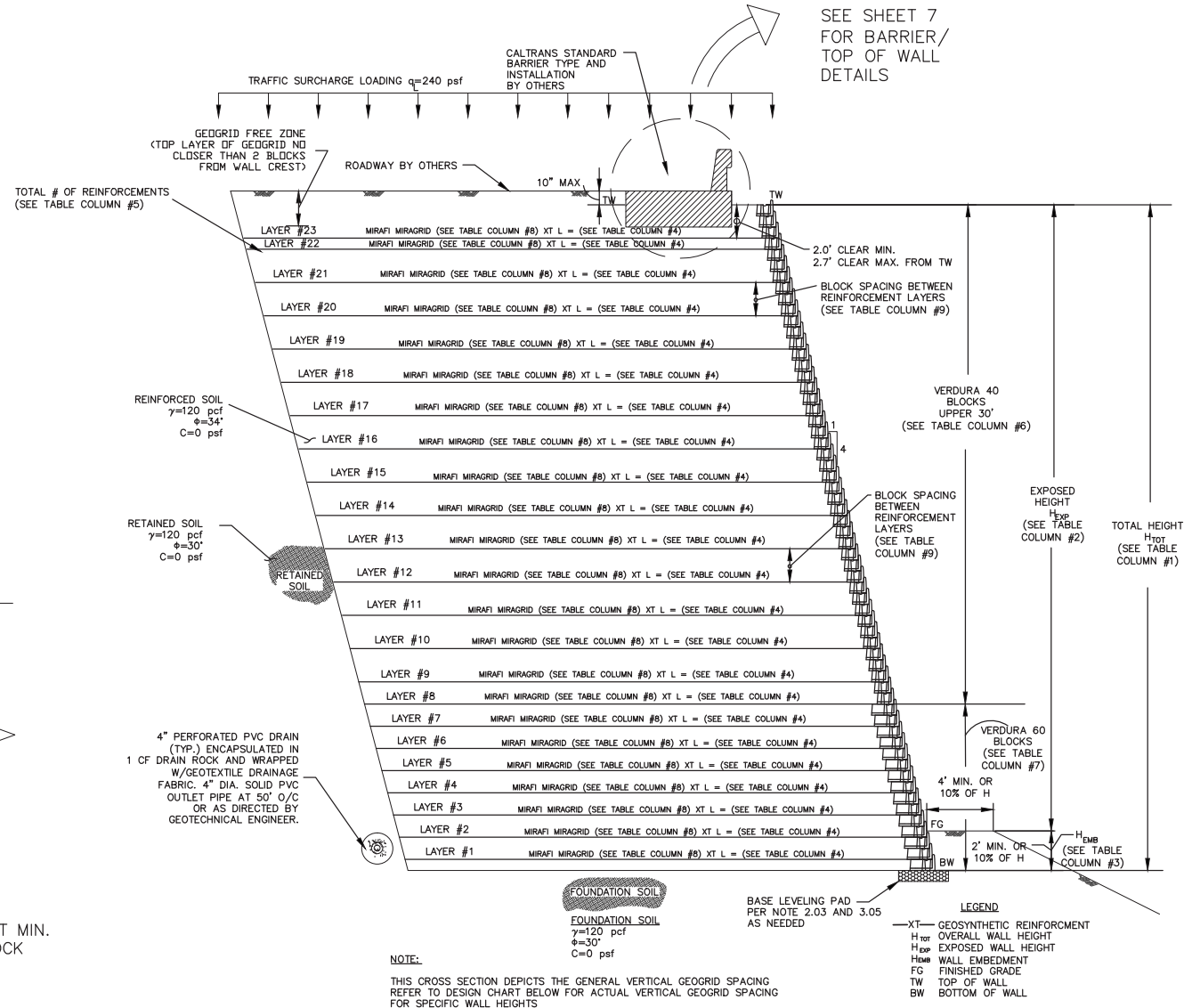
**VERDURA 40 BLOCK DETAILS**



**VERDURA 60 BLOCK DETAILS**



**VERDURA GEOGRID CONNECTION DETAIL**



**TYPICAL CROSS SECTION - CASE I**

**NOTES:**

- 1) GEOGRID LENGTHS ARE MEASURED FROM THE POINT OF CONNECTION
- 2) ALL IRRIGATION LINES ARE TO BE INSTALLED ALONG THE FACE OF THE WALL. REFER TO PROJECTS REQUIREMENTS WITHIN THE CONSTRUCTION DOCUMENTS FOR IRRIGATION DETAILS

**DESIGN NOTES:**

- 1) FOR DESIGN WALL HEIGHTS NOT DEPICTED IN THE TABLE USE LARGER WALL HEIGHT DESIGN CASE FROM THE TABLE. EXAMPLE: FOR A 12.1 FT WALL USE THE 14 FT DESIGN CASE.
- 2) WHERE THE MINIMUM NUMBER OF REQUIRED GEOGRIDS FOR THE LARGER WALL HEIGHT DESIGN DOES NOT FIT WITHIN THE DESIGN WALL HEIGHT, USE A CLOSER GEOGRID SPACING AS NECESSARY TO FIT ALL REQUIRED GEOGRIDS WITHIN THE DESIGN HEIGHT.
- 3) TOTAL HEIGHT DESIGN IN COLUMN #1 ACCOMMODATES BARRIER AND SURCHARGE LOADING. ROAD GRADE ELEVATION EQUALS TW ELEVATION+10" MAX.

CASE 1 DESIGN CHART <sup>®</sup> VERDURA 40/60 RETAINING WALL- LEVEL TOP WITH TRAFFIC SURCHARGE AND BARRIER													
COLUMN #1	COLUMN #2	COLUMN #3	COLUMN #4	COLUMN #5	COLUMN #6	COLUMN #7	COLUMN #8 GEOGRID REINFORCEMENT TYPE			COLUMN #9 BLOCK SPACING BETWEEN REINFORCEMENT LAYER NUMBER			
							MIRAGRID 8XT GEOGRID PER LAYER (#) W/ V40 BLOCK	MIRAGRID 20XT GEOGRID PER LAYER (#) W/ V40 BLOCK	MIRAGRID 20XT GEOGRID PER LAYER (#) W/ V60 BLOCK	1 BLOCK SPACING	2 BLOCK SPACING	3 BLOCK SPACING	FROM THE CREST
32	28.8	3.2	22.4	17	30	2	LAYERS #8 THROUGH #17	LAYERS #3 THROUGH #7	LAYERS #1 & #2	LAYERS #1 & #17	LAYERS #2 & #3	LAYERS #4 THROUGH #16	MAXIMUM 4 COURSES
34	30.6	3.4	23.8	18	30	4	LAYERS #9 THROUGH #18	LAYERS #4 THROUGH #8	LAYERS #1 THROUGH #3	LAYER #1	LAYERS #2 THROUGH #4 & #18	LAYERS #5 THROUGH #17	MAXIMUM 4 COURSES
36	32.4	3.6	25.2	20	30	6	LAYERS #11 THROUGH #20	LAYERS #6 THROUGH #10	LAYERS #1 THROUGH #5	LAYERS #1 & #20	LAYERS #2 THROUGH #6	LAYERS #7 THROUGH #19	MAXIMUM 4 COURSES
38	34.2	3.8	26.6	21	30	8	LAYERS #12 THROUGH #21	LAYERS #7 THROUGH #11	LAYERS #1 THROUGH #6	LAYER #1	LAYERS #2 THROUGH #8 & #21	LAYERS #9 THROUGH #20	MAXIMUM 4 COURSES
40	36	4.0	28	23	30	10	LAYERS #14 THROUGH #23	LAYERS #9 THROUGH #13	LAYERS #1 THROUGH #8	LAYERS #1 & #23	LAYERS #2 THROUGH #9	LAYERS #10 THROUGH #22	MAXIMUM 4 COURSES

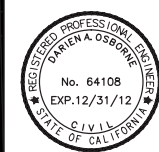
**NOTE:** FOR WALLS LESS THAN 30.1' SEE MAXIMUM 30' TOTAL HEIGHT DESIGN

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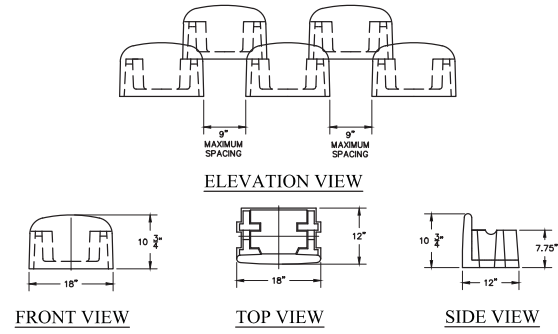


**SOIL RETENTION  
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PH: 800-346-7995 FAX: 760-960-6099

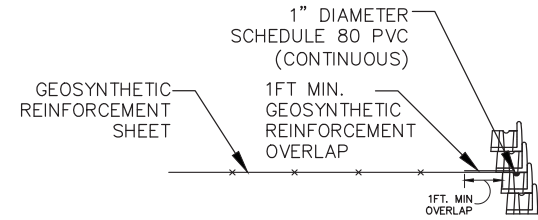
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	WALL #
XX	XXX	XX	XXX/XXX	XX
REGISTERED CIVIL ENGINEER _____ DATE _____				
X-X-X PLANS APPROVAL DATE _____				
The State of California or its officers or agents shall not be responsible for the accuracy or				



CALTRANS STANDARD DETAILS  
**CASE I DESIGN  
30' TO 40' TOTAL HEIGHT**  
VERDURA<sup>®</sup> RETAINING WALL PLANS OF 7 SHTS

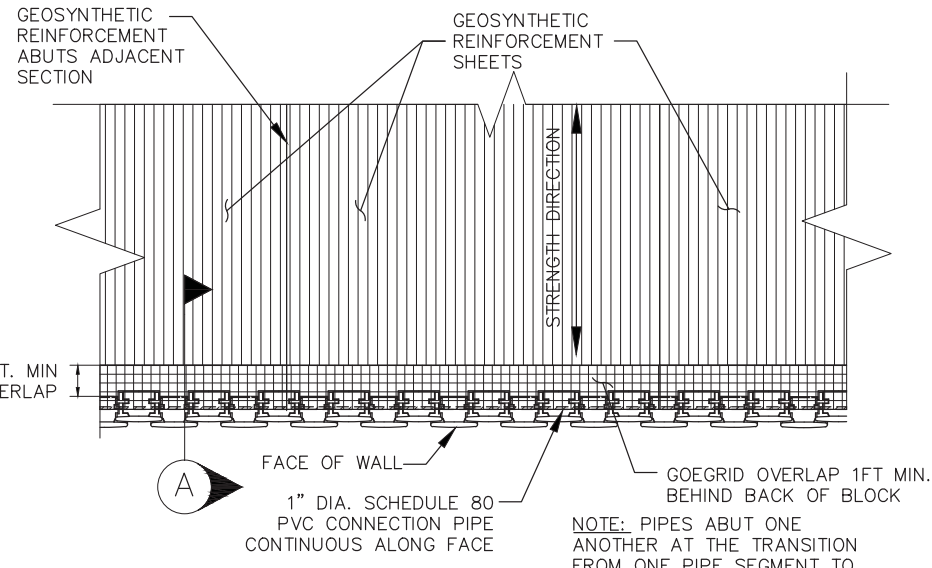


**VERDURA 40 BLOCK DETAILS**



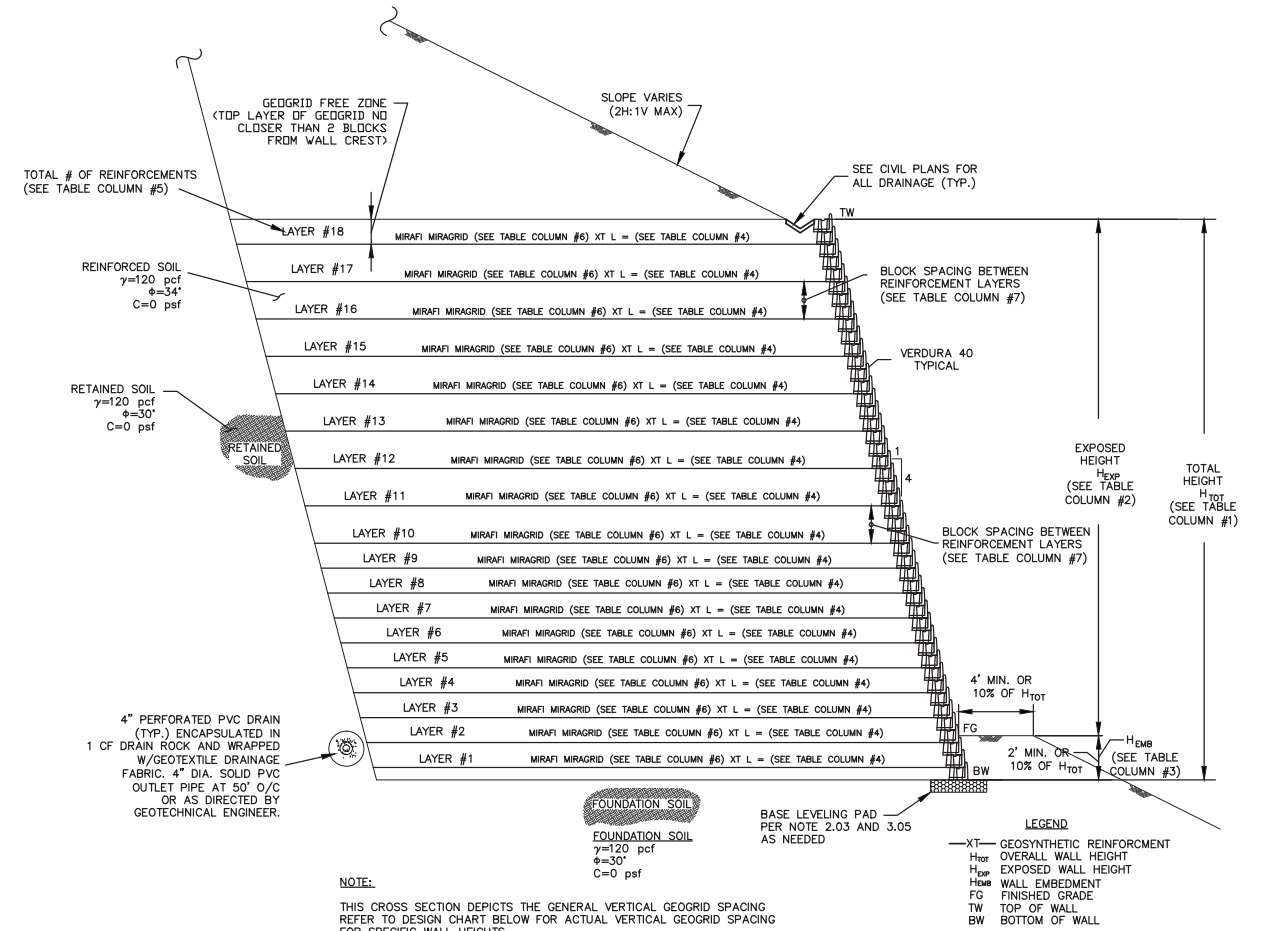
**SECTION A**

NOTE: GEOSYNTHETIC REINFORCEMENT OVERLAP SHALL BE ON TOP.



**PLAN VIEW**

**VERDURA CONNECTION DETAIL**



**TYPICAL CROSS SECTION - CASE II**

NOTE: THIS CROSS SECTION DEPICTS THE GENERAL VERTICAL GEOGRID SPACING. REFER TO DESIGN CHART BELOW FOR ACTUAL VERTICAL GEOGRID SPACING FOR SPECIFIC WALL HEIGHTS

CASE 2 DESIGN CHART- VERDURA 40 <sup>®</sup> RETAINING WALL- 2:1 ASCENDING SLOPE										
COLUMN #1	COLUMN #2	COLUMN #3	COLUMN #4	COLUMN #5	COLUMN #6 GEOGRID REINFORCEMENT TYPE		COLUMN #7 BLOCK SPACING BETWEEN REINFORCEMENT LAYER NUMBER			
TOTAL HEIGHT H TOT (FT)	EXPOSED HEIGHT H' (FT)	EMBEDDED HEIGHT H EMB (FT)	REINFORCEMENT LENGTH L (FT)	NUMBER OF REINFORCEMENT LAYERS	MIRAGRID 8XT GEOGRID PER LAYER (#)	MIRAGRID 20XT GEOGRID PER LAYER (#)	1 BLOCK SPACING	2 BLOCK SPACING	3 BLOCK SPACING	FROM THE CREST
< 6	4 OR LESS	2	8	3 (MINIMUM 2)	ALL LAYERS	N/A	LAYER #1	N/A	LAYERS #2 & #3	MAXIMUM 2 COURSES
8	6	2	8	4	ALL LAYERS	N/A	LAYER #1	N/A	LAYERS #2 THROUGH #4	MAXIMUM 2 COURSES
10	8	2	10	5	ALL LAYERS	N/A	LAYER #1	N/A	LAYERS #2 THROUGH #5	MAXIMUM 2 COURSES
12	10	2	10	6	ALL LAYERS	N/A	LAYER #1	N/A	LAYERS #2 THROUGH #6	MAXIMUM 2 COURSES
14	12	2	12	7	ALL LAYERS	N/A	LAYER #1	N/A	LAYERS #2 THROUGH #7	MAXIMUM 2 COURSES
16	14	2	13.5	8	ALL LAYERS	N/A	LAYER #1	N/A	LAYERS #2 THROUGH #8	MAXIMUM 2 COURSES
18	16	2	15	9	LAYERS #3 THROUGH #9	LAYERS #1 & #2	LAYER #1	N/A	LAYERS #2 THROUGH #9	MAXIMUM 2 COURSES
20	18	2	17	10	LAYERS #4 THROUGH #10	LAYERS #1 THROUGH #3	LAYER #1	N/A	LAYERS #2 THROUGH #10	MAXIMUM 2 COURSES
22	19.8	2.2	18.5	11	LAYERS #6 THROUGH #11	LAYERS #1 THROUGH #5	LAYER #1	N/A	LAYERS #2 THROUGH #11	MAXIMUM 2 COURSES
24	21.6	2.4	20.5	13	LAYERS #8 THROUGH #13	LAYERS #1 THROUGH #7	LAYER #1	LAYERS #2 THROUGH #4	LAYERS #5 THROUGH #13	MAXIMUM 2 COURSES
26	23.4	2.6	22	15	LAYERS #11 THROUGH #15	LAYERS #1 THROUGH #10	LAYER #1	LAYERS #2 THROUGH #7	LAYERS #8 THROUGH #15	MAXIMUM 2 COURSES
28	25.2	2.8	24	16	LAYERS #12 THROUGH #16	LAYERS #1 THROUGH #11	LAYER #1	LAYERS #2 THROUGH #7	LAYERS #8 THROUGH #16	MAXIMUM 2 COURSES
30	27	3.0	25.5	19	LAYERS #15 THROUGH #19	LAYERS #1 THROUGH #14	LAYERS #1 & #2	LAYERS #3 THROUGH #12	LAYERS #13 THROUGH #19	MAXIMUM 2 COURSES

NOTE: FOR WALLS GREATER THAN 30' SEE MAXIMUM 30'-40' TOTAL HEIGHT DESIGN

**NOTES:**

- 1) GEOGRID LENGTHS ARE MEASURED FROM THE POINT OF CONNECTION
- 2) ALL IRRIGATION LINES ARE TO BE INSTALLED ALONG THE FACE OF THE WALL. REFER TO PROJECTS REQUIREMENTS WITHIN THE CONSTRUCTION DOCUMENTS FOR IRRIGATION DETAILS

**DESIGN NOTES:**

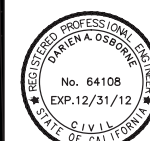
- 1) FOR DESIGN WALL HEIGHTS NOT DEPICTED IN THE TABLE USE LARGER WALL HEIGHT DESIGN CASE FROM THE TABLE. EXAMPLE: FOR A 12.1 FT WALL USE THE 14 FT DESIGN CASE.
- 2) WHERE THE MINIMUM NUMBER OF REQUIRED GEOGRIDS FOR THE LARGER WALL HEIGHT DESIGN DOES NOT FIT WITHIN THE DESIGN WALL HEIGHT, USE A CLOSER GEOGRID SPACING AS NECESSARY TO FIT ALL REQUIRED GEOGRIDS WITHIN THE DESIGN HEIGHT.

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PH: 800-346-7995 FAX: 760-960-6099

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	WALL #
XX	XXX	XX	XXX/XXX	XX
REGISTERED CIVIL ENGINEER		X/X/X DATE		
X-X-X		PLANS APPROVAL DATE		
The State of California or its officers or agents shall not be responsible for the accuracy or				

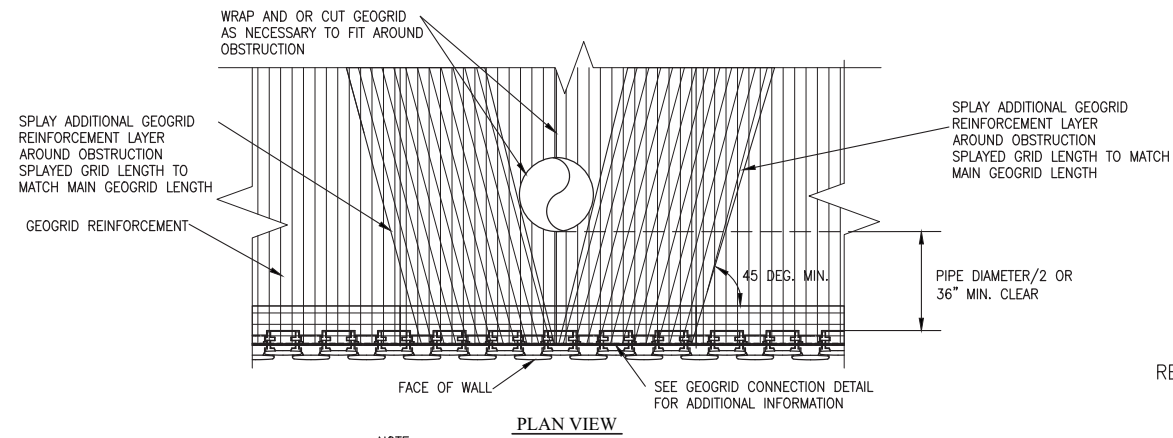


CALTRANS STANDARD DETAILS  
**CASE II DESIGN  
MAXIMUM 30' TOTAL HEIGHT**  
VERDURA<sup>®</sup>RETAINING WALL PLANS OF 4 SHTS





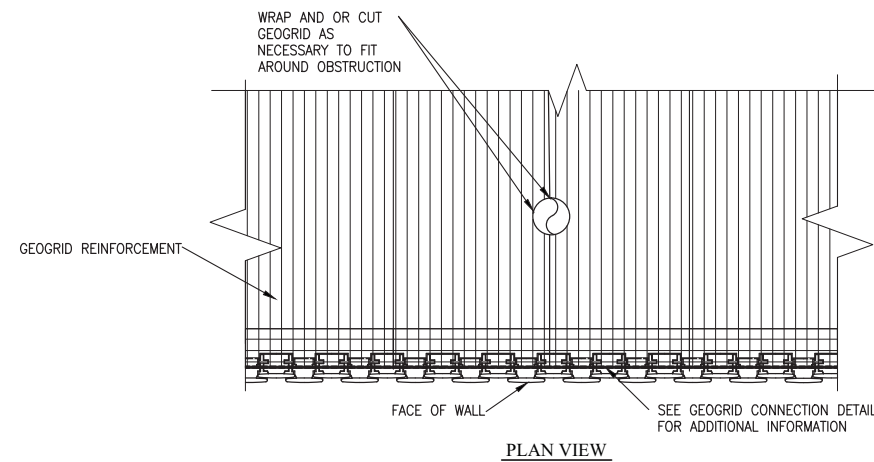
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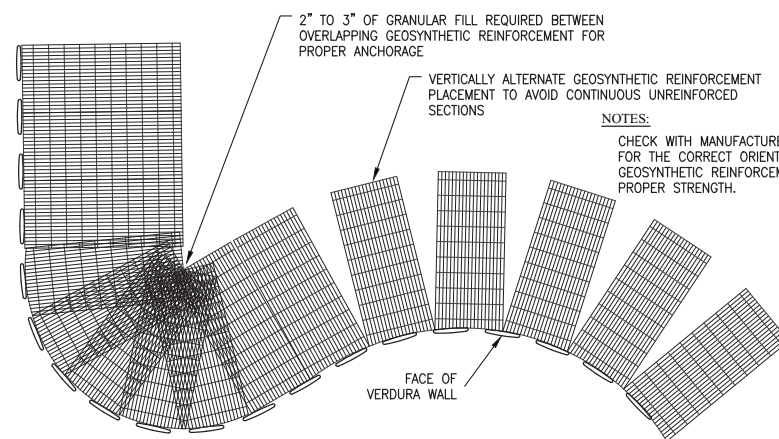
**NOTE:**

1. SPLAYED GRID LAYER IS TO BE PLACED 1 BLOCK COURSE ABOVE / BELOW MAIN GEOGRID REINFORCING LAYER
2. PIPE PROTRUSION SHALL BE PLACED A MINIMUM DISTANCE AWAY FROM THE BACK OF BLOCK EQUAL TO THE PIPE DIAMETER/2 OR 36" WHICHEVER IS GREATER.

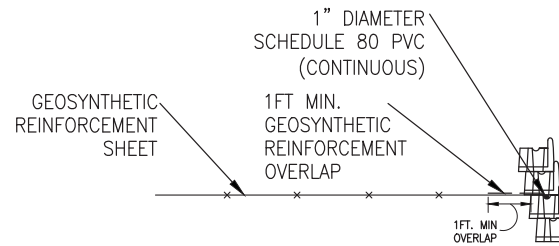
**GEOGRID OBSTRUCTION DETAIL FOR PROTRUSIONS  $\geq 36"$**



**GEOGRID OBSTRUCTION DETAIL FOR PROTRUSIONS  $\leq 36"$**

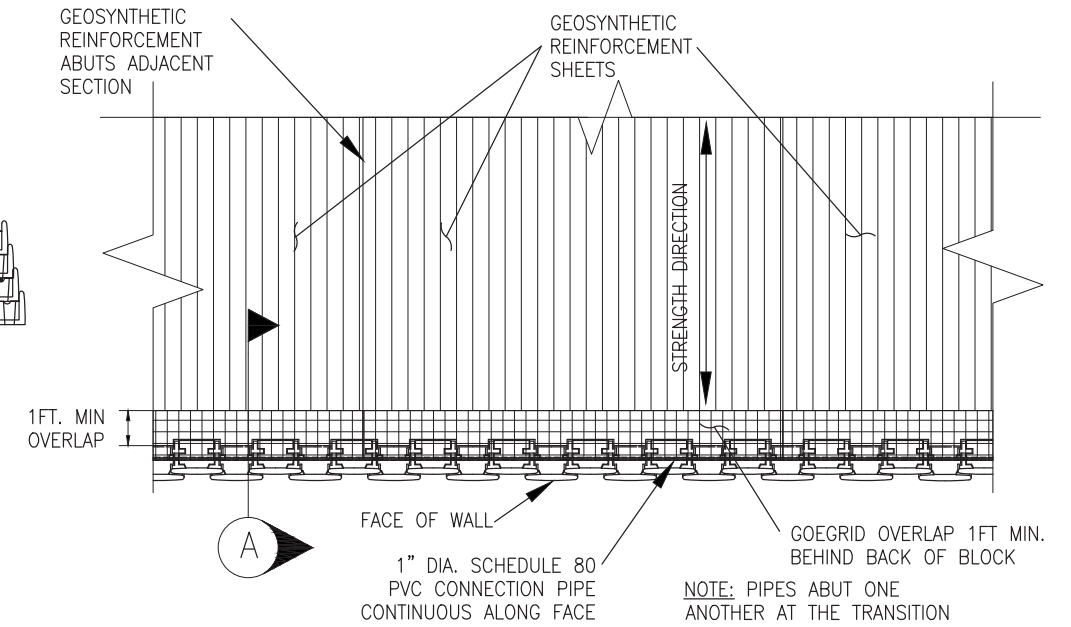


**GEOGRID PLACEMENT ON CURVES**



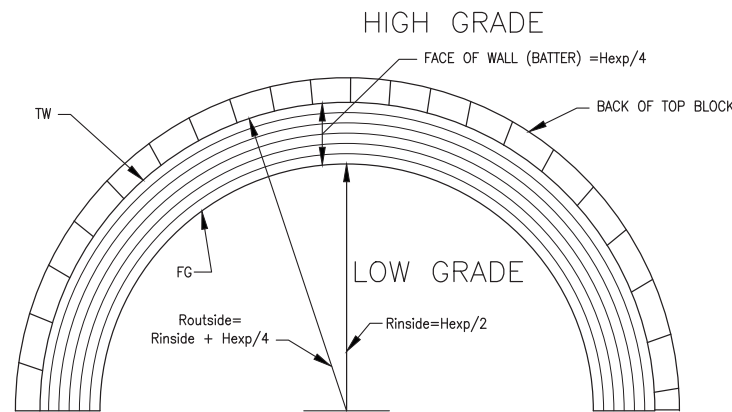
**SECTION A**

**NOTE:** GEOSYNTHETIC REINFORCEMENT OVERLAP SHALL BE ON TOP.



**PLAN VIEW**

**GEOGRID CONNECTION DETAIL**

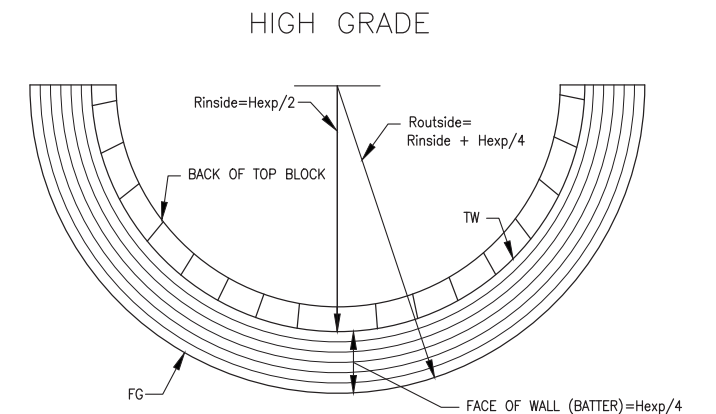


**PLAN VIEW**

**NOTES:**

1. TIGHTER RADIUS CURVES CAN BE ACHIEVED BY VARYING THE SPACING BETWEEN THE BLOCKS. THE MAXIMUM SPACING OF THE BLOCKS SHALL BE 9" AND THE MINIMUM SPACING OF THE BLOCK SHALL NOT BE LESS THAN 4".
2. THE MINIMUM INSIDE RADIUS SHALL NOT BE LESS THAN THE EXPOSED HEIGHT DIVIDED BY 2, HEXP/2, OR 5 FT.

**TYPICAL CONCAVE CURVE DETAIL**



**PLAN VIEW**

**LEGEND:**

Hexp = EXPOSED HEIGHT  
Rinside = INSIDE RADIUS  
Routside = OUTSIDE RADIUS

**TYPICAL CONVEX CURVE DETAIL**



**SOIL RETENTION  
DESIGNS INC.**

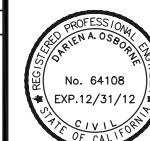
2501 STATE ST. CARLSBAD CA. 92008  
PH: 800-346-7995 FAX: 760-960-6099

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	WALL #
XX	XXX	XX	XXX/XXX	XX

REGISTERED CIVIL ENGINEER x/x/x  
DATE

X-X-X  
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or



CALTRANS STANDARD DETAILS

**TYPICAL DETAILS**

VERDURA® RETAINING WALL PLANS OF 7 SHTS.

